

CLAIM AMENDMENTS

1 1. (currently amended) A method for the provision of
2 telecommunications services in an environment in which there are a
3 plurality of systems working according to different standards
4 [[WLAN, UMTS]] and reachable from a terminal [[T]] in an
5 integrated way, wherein at least one of [[said]] the
6 telecommunications services [[can]] being provided by several
7 systems of [[said]] the plurality, [[said]] the method being
8 ~~characterised in that it includes~~ comprising, with regard to the
9 request of provision of [[said]] the at least one telecommunication
10 service, the steps of: [[-]]

11 verifying the availability for the provision of the
12 requested telecommunication service of at least a first [[WLAN]]
13 and a second [[UMTS]] system of [[said]] the plurality, the first
14 telecommunication system forming with respect to the second
15 telecommunication system a resource to be exploited in a
16 preferential way, and [[-]]

17 selecting, in an automatic and dynamic way, at least one
18 between [[said]] the first [[WLAN]] and [[said]] the second
19 [[UMTS]] system of [[said]] the plurality for the provision of
20 the requested telecommunication service by subdividing the
21 telecommunication services into

22 a first set of telecommunication services to be
23 substantially provided through the second
24 telecommunication system, and

25 a second set of telecommunication services to be
26 provided through the first telecommunication
27 system and the second telecommunication system,

28 b) in case of a request for provision of a
29 telecommunication service from the first set, verifying the
30 availability of the second telecommunication system for providing
31 the telecommunication service of the first set as requested,
32 supplying and not supplying respectively the telecommunication
33 service of the first set through the second telecommunication
34 system, depending on whether or not the second telecommunication
35 system is available,

36 c) in case of a request for provision of a
37 telecommunication service of the second set,

38 cl) verifying the availability of the first
39 telecommunication system in order to provide
40 the telecommunication service of the second
41 set, as requested, and providing the
42 telecommunication service of the second set, as
43 requested, through the first telecommunication
44 system, if the first telecommunication system
45 is available,

46 c2) if the first telecommunication system is
47 unavailable for transmission of the
48 telecommunication service of the second set as
49 requested, verifying the availability of the
50 second telecommunication system to provide the
51 telecommunication service of the second set, as
52 requested, and providing and not providing the
53 telecommunication service of the second set, as
54 requested, depending on whether or not the
55 second telecommunication system is available
56 for provision of the telecommunication service
57 of the second set, as requested.

2. (canceled)

1 3. (currently amended) The method as recited in claim 1
2 ~~2, characterised in that~~ wherein ~~[[said]]~~ the selecting step is
3 carried out so as to find out, within ~~[[said]]~~ the first set, a
4 subset of telecommunication services that could be provided in at
5 least a condition of modified communication resources, ~~and by the~~
6 ~~fact that in~~ the presence ~~[[(108)]]~~ of a provision request for a
7 telecommunication service of ~~[[said]]~~ the subset ~~, it includes~~
8 including the step of:
9 verifying ~~[[(104)]]~~ the unavailability of ~~[[said]]~~ the
10 second telecommunication system ~~[[(UMTS)]]~~ for the provision of

11 [[said]] the telecommunication service of [[said]] the subset as
12 requested and,

13 once [[said]] the unavailability has been verified, ~~the~~
14 ~~step of~~ re-negotiating [(109)] the provision request whereby
15 [[said]] the telecommunication service of [[said]] the subset is
16 again requested for the provision in a condition of modified
17 communication resources.

1 4. (currently amended) The method as recited in claim 3
2 ~~2 or claim 3, characterised in that wherein~~ [[said]] the selecting
3 step is carried out so as to lead, within [[said]] the second set,
4 to a respective subset of telecommunication services that are
5 deliverable in at least one condition of modified communication
6 resources, and ~~in that~~, when there is [(112)] a provision request
7 for a telecommunication service of [[said]] the respective subset,
8 it comprises the steps of

9 verifying [(114)] the unavailability of at least one
10 between [[said]] the first [(WLAN)] and [[said]] the second
11 [(UMTS)] system for the provision of [[said]] the
12 telecommunication service of [[said]] the respective subset as
13 requested and,

14 after verifying [[said]] the unavailability
15 [(114,118)], ~~the step of~~ re-negotiating [(124)] the provision
16 request, whereby the provision of [[said]] the telecommunication

17 service of ~~[[said]]~~ the respective subset ~~[[is]]~~ being requested
18 again in a condition of modified communication resources.

1 5. (currently amended) The method as recited in ~~claim~~
2 ~~3 or claim 4, characterised in that~~ wherein ~~[[said]]~~ the selecting
3 step is carried out so as to be able to lead, within at least one
4 between ~~[[said]]~~ the set and ~~[[said]]~~ the respective subset, to
5 telecommunication services that may be provided under a plurality
6 of conditions of modified communication resources, ~~and in that the~~
7 method ~~includes~~ further comprising the step of
8 repeatedly re-negotiating ~~[[109,124]]~~ the request for
9 service provision under subsequently modified communication
10 resources.

1 6. (currently amended) The method as recited in claim 1
2 ~~any of the previous claims 2 to 5, characterised in that~~ wherein
3 ~~[[said]]~~ the selecting step comprises the step of subdividing
4 ~~[[said]]~~ the telecommunication services into a first set comprising
5 services of conversational class and a second set comprising
6 services included in at least one class among the classes of
7 streaming services, interactive services, and background services.

1 7. (currently amended) The method as recited in claim 4
2 ~~and in claim 6, characterised in that~~ wherein ~~[[said]]~~ the

3 ~~respective subset of services of said~~ second set includes streaming
4 class services.

1 8. (currently amended) The method as recited in ~~any of~~
2 ~~the previous claims, characterised in that~~ claim 1 wherein the
3 selecting step is carried out by selecting ~~[[said]]~~ the systems in
4 the group formed by the mobile communication systems.

1 9. (currently amended) The method as recited in claim
2 ~~8, characterised in that~~ wherein the selecting step is carried out
3 by selecting ~~[[said]]~~ the systems in the group formed by ~~[[the]]~~
4 UMTS, WLAN and 802.11 systems.

1 10. (currently amended) The method as recited in claim
2 1, further comprising ~~any of the previous claims, characterise in~~
3 ~~that it comprises~~ the step of

4 verifying the availability of ~~[[said]]~~ the first
5 telecommunication system ~~[[WLAN]]~~ on the basis of a criterion of
6 admission control of the users ~~[[,]]~~ by detecting the performance
7 degradation of ~~[[said]]~~ the first telecommunication system as the
8 number of users increases.

1 11. (currently amended) The method as recited in claim
2 10, ~~characterised in that it comprises~~ further comprising the steps
3 of: ~~[[-]]~~

4 detecting the total bit rate available to the active
5 users on [[said]] the first telecommunication system [[(WLAN)]],
6 and [[-]]

7 considering [[said]] the first telecommunication system
8 as unavailable for a new user when the bit rate available upon the
9 possible admission of the new user reaches a threshold value.

1 12. (currently amended) The method as recited in claim
2 1, further comprising any of the previous claims, characterised in
3 that it comprises the step of

4 detecting the availability of [[said]] the second
5 telecommunication system [[(UMTS)]], by defining a load parameter
6 [[η]] of [[said]] the second telecommunication system and by
7 considering [[said]] the second telecommunication system as
8 unavailable when [[said]] the load parameter reaches a threshold
9 value.

1 13. (currently amended) The method as recited in claim
2 12, characterised in that wherein [[said]] the load parameter
3 [[η]] is a parameter derived on the basis of "pole capacity."

4 14. (currently amended) A system for providing
5 telecommunications services in an environment wherein a plurality
6 of telecommunications systems are provided that operate according
7 to different standards [[(WLAN, UMTS)]] and that may be accessed

8 from a terminal [(T)] in an integrated manner, ~~in which~~ at least
9 one of [[said]] the telecommunication services [[is]] being
10 deliverable by more than one of the telecommunications systems of
11 [[said]] the plurality, the system being ~~characterised in that it~~
12 ~~incorporates a module (10)~~ capable, when there is a provision
13 request for [[said]] the at least one telecommunication service, of
14 co-operating with [[said]] the plurality of telecommunications
15 systems ~~with the aim of~~ and comprising: [[]]

16 means for verifying the availability for the provision of
17 the telecommunication service requested, of at least a first
18 [(WLAN)] and a second [(UMTS)] system of [[said]] the plurality
19 of telecommunications systems, and [[]]

20 means for selecting, in an automatic and dynamic way,
21 between [[said]] the telecommunications systems ~~at least a first~~
22 [(WLAN)] and [[a]] the second [(UMTS)] system of [[said]] the
23 plurality for the provision of the telecommunication service
24 requested, the first system forming with respect the second system
25 a resource to be exploited preferentially, the selecting means
26 including

27 a) means for subdividing the telecommunication
28 services into

29 a first set of telecommunication services to be
30 substantially provided through the second
31 telecommunication system, and

32 a second set of telecommunication services to
33 be provided through the first
34 telecommunication system and the second
35 telecommunication system,

36 b) means for, in case of a request for provision of
37 a telecommunication service from the first set,
38 verifying the availability of the second
39 telecommunication system for providing the
40 telecommunication service of the first set as
41 requested, supplying and not supplying
42 respectively the telecommunication service of
43 the first set through the second
44 telecommunication system, depending on whether
45 or not the second telecommunication system is
46 available,

47 c) means for, in case of a request for provision of
48 a telecommunication service of the second set,
49 cl) verifying the availability of the first
50 telecommunication system in order to
51 provide the telecommunication service of
52 the second set, as requested, and
53 providing the telecommunication service of
54 the second set, as requested, through the
55 first telecommunication system, if the

56 first telecommunication system is
57 available,
58 c2) if the first telecommunication system is
59 unavailable for transmission of the
60 telecommunication service of the second
61 set as requested, verifying the
62 availability of the second
63 telecommunication system to provide the
64 telecommunication service of the second
65 set, as requested, and providing and not
66 providing the telecommunication service of
67 the second set, as requested, depending on
68 whether or not the second
69 telecommunication system is available for
70 provision of the telecommunication service
71 of the second set, as requested.

1 15. (currently amended) The system as recited in claim
2 14 , ~~characterised in that said module (10) is~~ wherein the means
3 are integrated into a controller ~~element~~ common to [[said]] at
4 least a first ~~(WLAN)~~ and a second ~~(UMTS)~~ system of [[said]] the
5 plurality.

16. (canceled)

1 17. (currently amended) The system as recited in claim
2 ~~16, characterised in that 15 wherein the means are said module (10)~~
3 ~~is configured to conduct said select ing step so as said~~ such that
4 the selection can lead to the presence, within [[said]] the first
5 set, of a subset of telecommunication services deliverable in at
6 least a condition of reduced communication resources, and ~~in that,~~
7 in [[the]] case [[(108)]] of a provision request of a
8 telecommunication service of [[said]] the subset, [[said]] the
9 ~~module (10) is~~ means are configured to verify [[(104)]] the
10 unavailability of [[said]] the second telecommunication system
11 [[(UMTS)]] for the provision of [[said]] the telecommunication
12 service of [[said]] the subset as requested, and, once [[said]] the
13 unavailability has been verified, to re-negotiate [[(109)]] the
14 provision request, ~~whereby said the telecommunication~~ service of
15 [[said]] the subset [[is]] being requested again for the provision
16 in a condition of reduced communication resources.

1 18. (currently amended) The system as recited in claim
2 ~~14, the means being 16 or in claim 17, characterised in that the~~
3 ~~module (10) is~~ configured to conduct ~~said select ing step~~ in such a
4 way that [[said]] the selection can lead, within [[said]] the
5 second set, to a respective subset of telecommunication services
6 [[,]] capable of being provided in at least a condition of reduced
7 communication resources, and in that in [[the]] case [[(112)]] of a
8 provision request for a telecommunication service of [[said]] the

9 respective subset, ~~said module (10) is the means are~~ configured to
10 verify ~~[(114)]~~ the unavailability of at least one between
11 ~~[[said]] the~~ first ~~[(WLAN)]~~ and second ~~[(UMTS)]~~ system for the
12 provision of ~~[[said]] the telecommunication~~ service of ~~[[said]] the~~
13 respective subset as requested and, once ~~[[said]] the~~
14 unavailability ~~[(114,118)]~~ has been verified, to re-negotiate
15 ~~[(124)]~~ the provision request ~~whereby the~~ such that provision of
16 ~~[[said]] the telecommunication~~ service of ~~[[said]] the~~ respective
17 subset is requested again in a condition of reduced communication
18 resources.

1 19. (currently amended) The system as recited in claim
2 ~~17 or in claim 18, characterised in that wherein the means are said~~
3 ~~module (10) is~~ configured to ~~conduct said select ing step~~ in such a
4 way that ~~[[said]] the~~ selection can lead, within at least one
5 between ~~[[said]] the~~ set and ~~[[said]] the~~ respective subset, to
6 telecommunication services that can be provided in a plurality of
7 conditions of modified communication resources, ~~and in that said~~
8 ~~the module (10) is the means being~~ configured to repeatedly
9 re-negotiate ~~[(109,124)]~~ the request for telecommunication
10 service provision under conditions of subsequently modified
11 communication resources.

1 20. (currently amended) The system as recited in claim
2 14 wherein the means are any of the previous claims 16 to 19,

3 ~~characterised in that said the module (10) is configured in a way~~
4 ~~that said to select ing step can lead to such that the subdivision~~
5 ~~of [[said]] the telecommunication services into a first set~~
6 ~~comprising comprises telecommunication services of conversational~~
7 ~~class and [[a]] the second set of telecommunication services~~
8 ~~comprising comprises telecommunication services included in at~~
9 ~~least one class among the classes of the streaming services,~~
10 ~~interactive services, and background services.~~

1 21. (currently amended) The system as recited in claim
2 ~~18 and claim 20, characterised in that wherein [[said]] the~~
3 ~~respective subset of services of [[said]] the second set comprises~~
4 ~~are services of a streaming class.~~

1 22. (currently amended) The system as recited in ~~any of~~
2 ~~the previous claim s 14 to 21 , characterised in that said module~~
3 ~~(10) is wherein the means are configured to co-operate with mobile~~
4 ~~communication systems, such as said including the~~
5 ~~telecommunications systems of [[said]] the plurality.~~

1 23. (currently amended) The system as recited in claim
2 ~~14 wherein the means are 22, characterised in that said the module~~
3 ~~(10) is configured to co-operate with telecommunications systems~~
4 ~~included in the group formed by [[the]] UMTS, WLAN and 802.11~~
5 ~~systems.~~

1 24. (currently amended) The system as recited in claim
2 23 ~~, characterised in that said module (10) is~~ the means are
3 integrated into a radio network type controller or RNC controller.

1 25. (currently amended) The system as recited in ~~any of~~
2 ~~the previous claims claim 14 to 24, characterised in that said~~
3 ~~module (10) is~~ wherein the means configured to verify the
4 availability of ~~[[said]]~~ the first telecommunication system
5 ~~[[WLAN]]~~ on the basis of a criterion of admission control of
6 ~~[[the]]~~ users thereof ~~[[,]]~~ by detecting ~~[[the]]~~ performance
7 degradation of ~~[[said]]~~ the first telecommunication system as the
8 number of users increases.

1 26. (currently amended) The system as recited in claim
2 25 ~~, characterised in that said module (10) is~~ the means are
3 configured to: ~~[[-]]~~

4 detect the total bit rate available to the users active
5 on ~~[[said]]~~ the first telecommunication system ~~[[WLAN]]~~, and ~~[[-]]~~
6]]

7 consider ~~[[said]]~~ the first telecommunication system
8 unavailable for a new user when the bit rate available following
9 the possible admission of the new user reaches a threshold value.

1 27. (currently amended) The system as recited in ~~any of~~
2 ~~the previous claims claim 14 to 26~~, characterised in that said
3 ~~module (10) is~~ wherein the means are configured to detect the
4 availability of ~~[[said]]~~ the second telecommunication system
5 ~~[[UMTS]]~~ by defining a load parameter ~~[[η]]~~ of ~~[[said]]~~ the
6 second telecommunication system and by considering ~~[[said]]~~ the
7 second telecommunication system as unavailable when ~~[[said]]~~ the
8 load parameter reaches a threshold value.

1 28. (currently amended) The system as recited in claim
2 ~~27, characterised in that~~ wherein ~~[[said]]~~ the load parameter
3 ~~[[η]]~~ is a parameter derived on the basis of "pole capacity".

1 29. (currently amended) A computer program product that
2 may be directly loaded in the internal memory of a digital computer
3 and that comprises portions of software code to carry out the
4 method according to ~~any of the claims claim 1 to 13~~, when ~~[[said]]~~
5 the product is run on a computer.